

Panel Discussion - Fuels

September 29, 2004

California Environmental Protection Agency



Air Resources Board

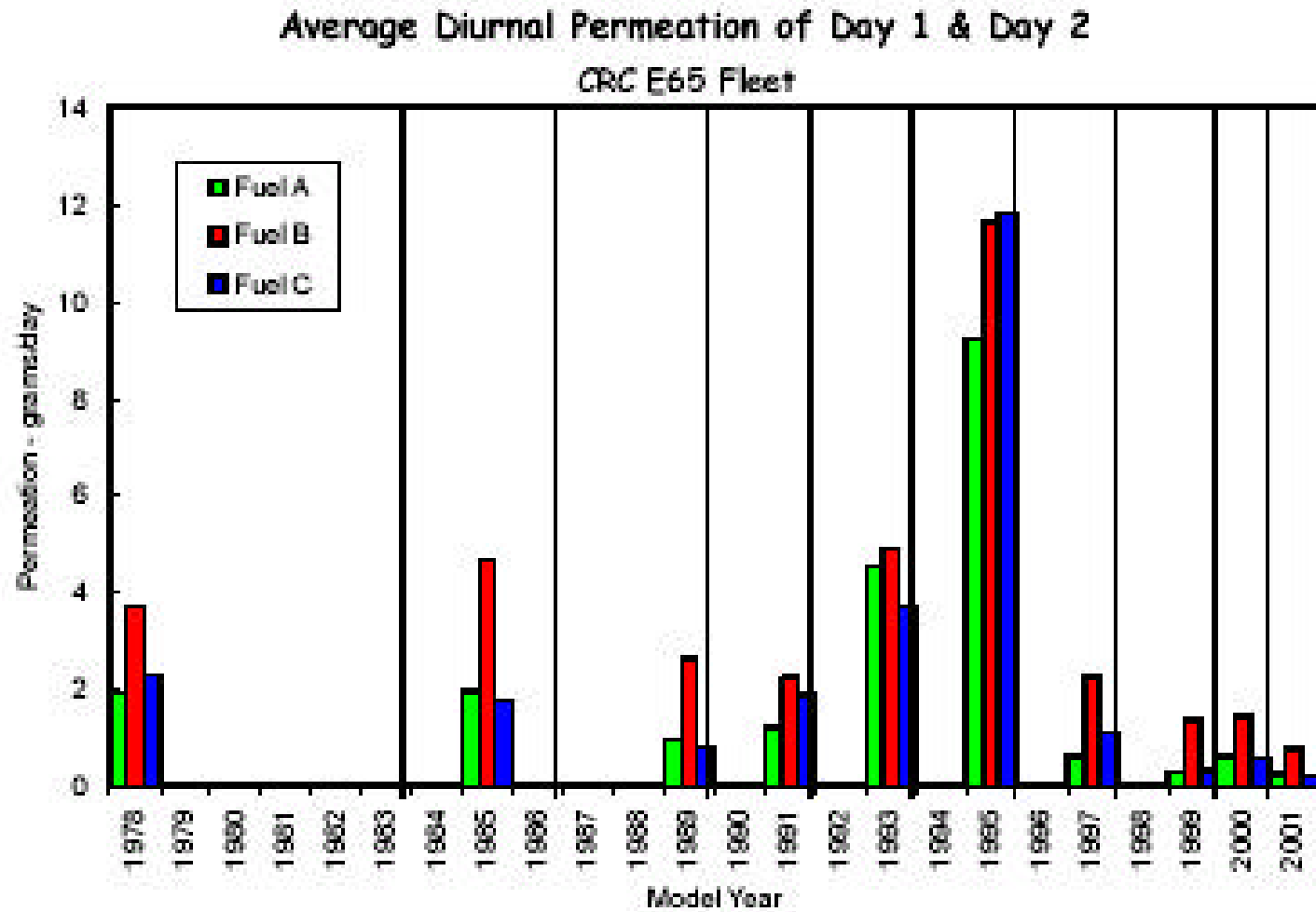
Panel Discussion

- ✦ Permeation Study
- ✦ Near Term
- ✦ Long Term Issues
 - National Fuel Standards
 - Diesel
- ✦ Next Actions

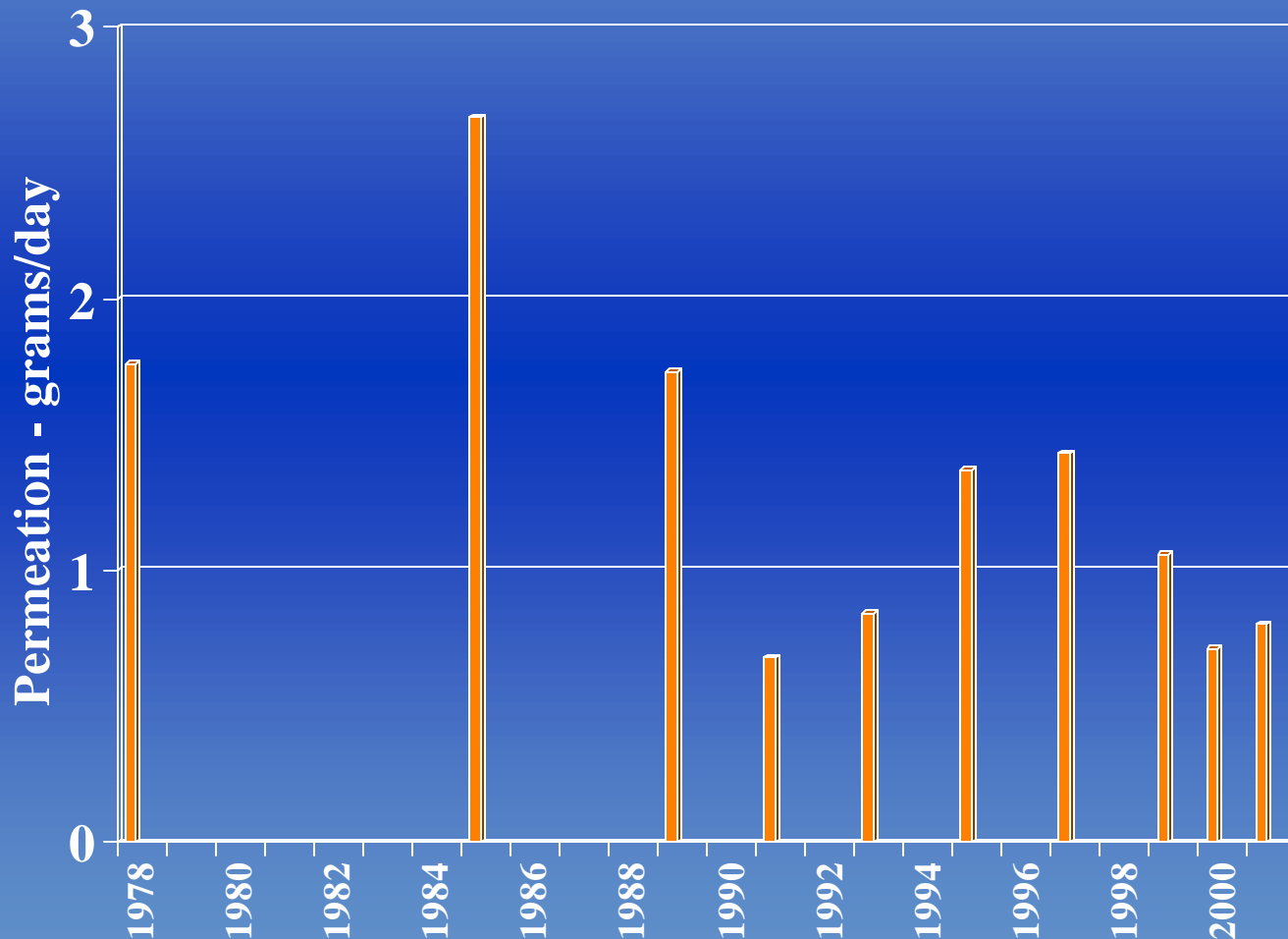
Permeation Study

Coordinating Research Council - E65

Average 2-day Diurnal Test



Difference of Fuel B and Average Fuel A and C Permeation Emissions



Test Results

- ✦ Permeation increased from the MTBE fuel to the ethanol fuel on all 10 vehicles.
- ✦ On average, ethanol emission increased permeation emissions compared to:
 - MTBE gasoline: 65%
 - Non-oxygenated gasoline: 45%
- ✦ Permeation increases, on average, by 1.4 g/day from MTBE fuel to ethanol fuel, and decreases, on average, by 1.1 g/day from ethanol to non-oxygenates fuel

Emissions

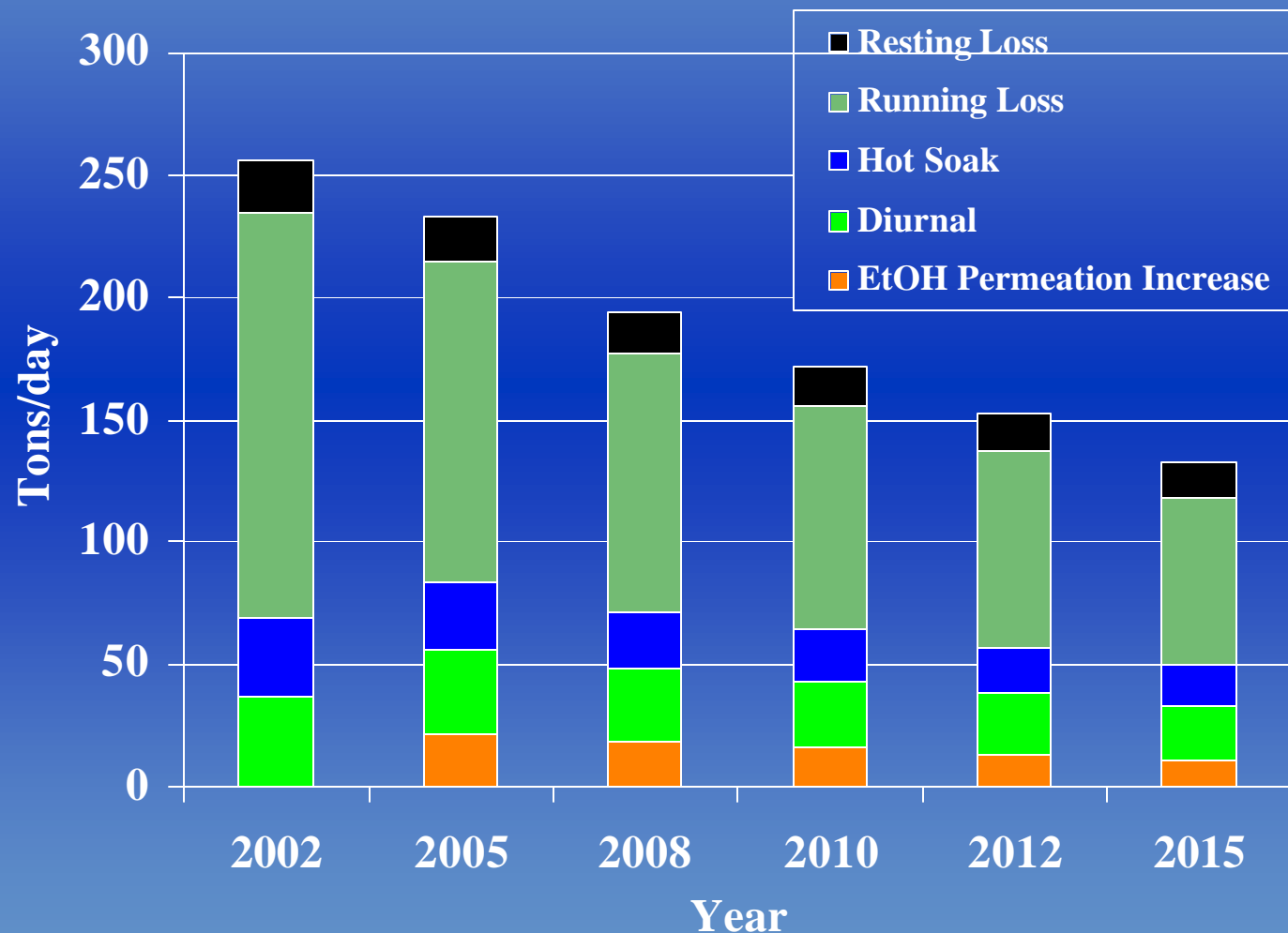
- ✦ CRC results do not directly provide the emissions impact of permeation
- ✦ To calculate emissions need to consider:
 - Permeation data
 - Diurnal temperature profiles
 - Fleet composition
 - Vehicle activity data
- ✦ Vehicle activity data and equipment temperatures must be integrated to provide an appropriate temporal and spatial distribution of emissions.

Other Vehicle Studies

- ✦ CRC E-65 study results consistent with other studies :
 - Toyota
 - GM

Preliminary Estimate - Evaporative Emissions

LDV (GVW < 3,750 lbs.), Statewide



SCAB - Estimated Change in Emissions

LDV (GVW < 3750 lbs.), 2005

Property	Change*	Emission Change, %		Emission Change, tpd	
		NOx	THC	NOx	THC
T50 (°F)	-5	-0.01	-1.91	0	-1.8
T90 (°F)	-5	0.05	-0.53	0.1	-0.5
RVP, psi	-0.1	0	-2.35	0	-1.8
S, ppmw	-5	-0.82	-0.44	-1.13	-0.43
Oxy, wt%	-2	-1.88	6.15	-2.6	3
	0.7	1.77	-1.08	2.4	-1
	1.5	4.59	-2.3	6.3	-2.2

* Minus (-) means reduction from the Flat Limits, all other properties at the Flat Limits

Estimated Permeation Emissions from Other Sources - Statewide

✦ Other sources:

- Portable Fuel containers ~ 7 tons
- Small offroad Engines ~ 10 tons
- Refueling equipment ~ 1 ton

✦ Sources where data do not yet exist:

- Offroad vehicles
- Stationary & portable engines
- Watercraft
- Others ?

Other Near Term Issues

Other Near Term Issues

- ✦ Further reduction in emissions
 - Limited ability to meet more stringent fuel specifications due to concerns over impacts on price, supply, and cost effectiveness.
- ✦ Predictive Model Update - Calendar Year 2005
 - Data set availability?

Other Near Term Issues

- ✦ California Waiver Request
- ✦ National Renewable Fuels Requirement

What are the Desired Goals for National Fuel Standards

✦ Oil Industry

- Provide regulatory certainty,
- Increase fungibility and flexibility

✦ Auto Industry

- Resolve technology needs: (Sulfur, fuel volatility)

✦ Environment

- Preserve/enhance emission benefits

✦ Oxygenates

- Change from RFG mandate to renewable fuels specification

Diesel - Ambient Air Quality Standard

- ✦ New 8-hour ozone standard and new PM 2.5 standard will make NOx reductions more important in California throughout the nation
- ✦ Reduction of diesel NOx emissions can be an important control strategy

Next Actions

- ✦ Future meetings
- ✦ Issue papers